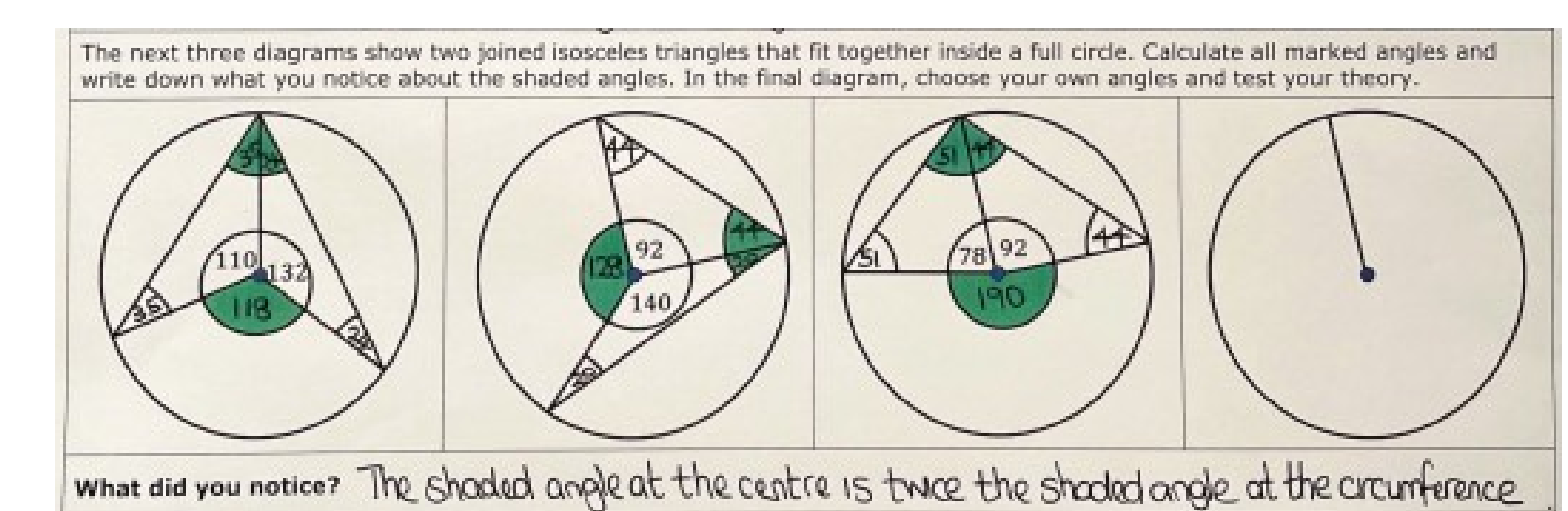
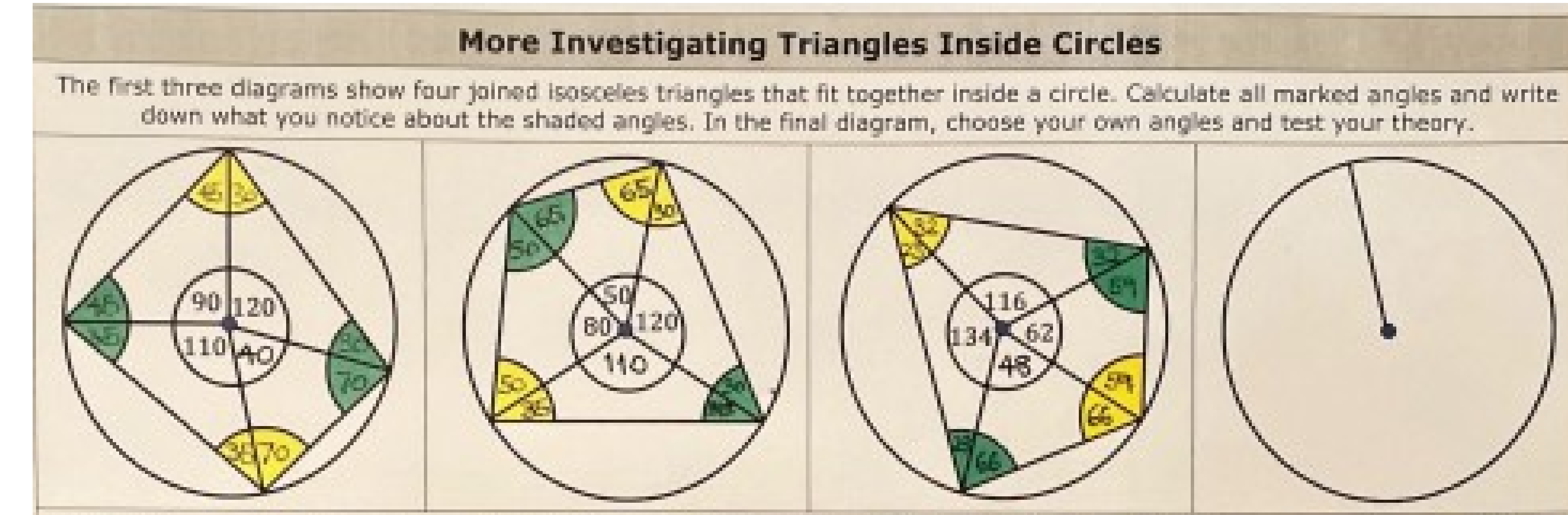
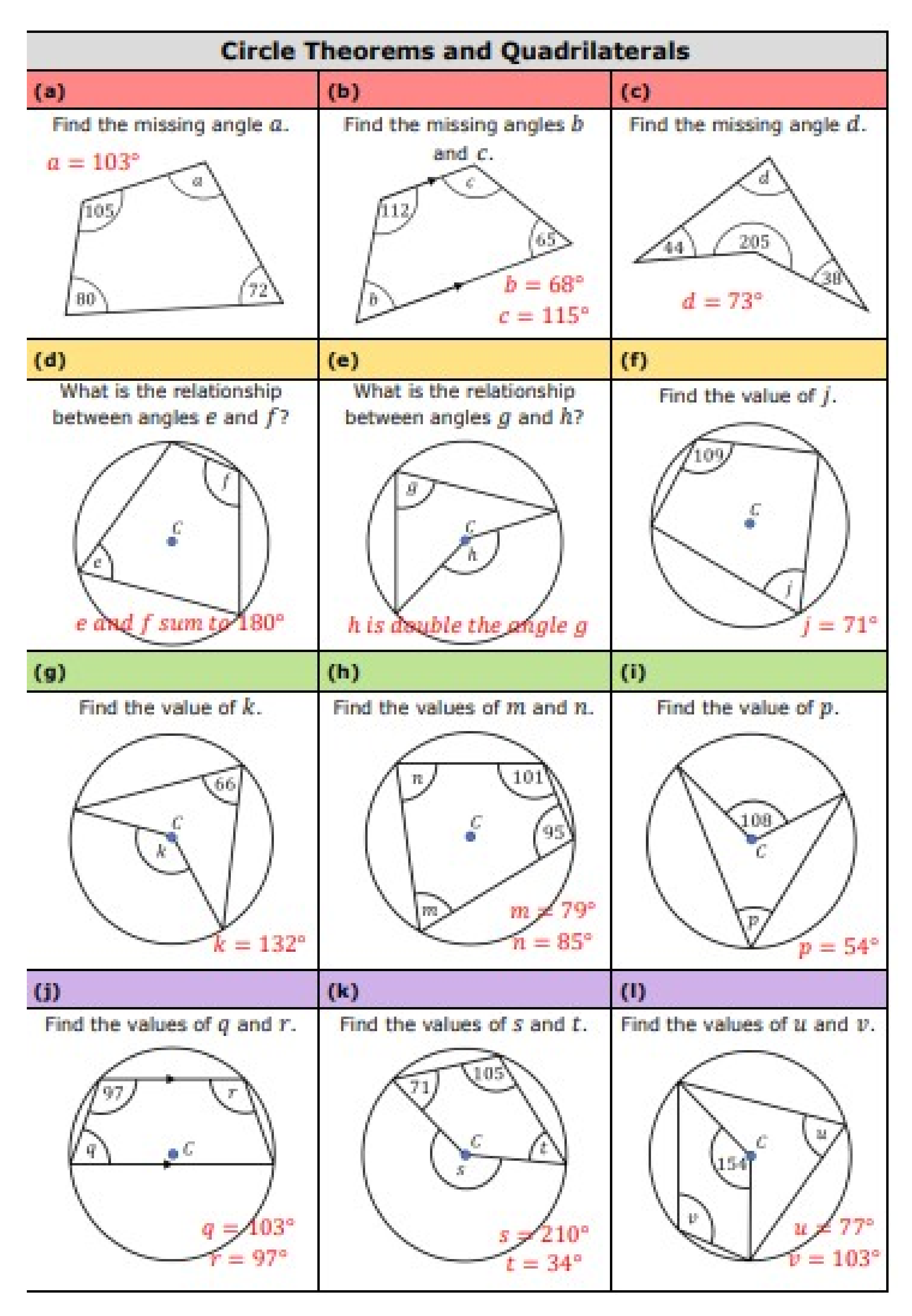
(4) Circle Theorems and Quadrilaterals
Do now

Circle Theorems and Triangles		
(a)	**(b)**	**(c)**
Find the missing angle a. 64° a $26°$	Find the missing angle b. 88° b $46°$	Find the missing angles c and d. 115° c d $65°, 50°$
(d)	**(e)**	**(f)**
What type of triangle is inside the circle? C $right - angled$	What type of triangle is inside the circle? C $isosceles$	What type of triangle is inside the circle? C $equilateral$
(g)	**(h)**	**(i)**
Find the missing angle y. C 30° y $30°$	Find the missing angle x. C x 55° $35°$	Find the missing angles a and b. C a 130° b $25°, 25°$
(j)	**(k)**	**(l)**
Find the missing angle y. C 28° y $118°$	Find the missing angle a. C 27° a $234°$	Find the missing angles x and y. C x y $45°, 90°$


The next three diagrams show two joined isosceles triangles that fit together inside a full circle. Calculate all marked angles and write down what you notice about the shaded angles. In the final diagram, choose your own angles and test your theory.
What did you notice? The shaded angle at the centre is twice the shaded angle at the circumference


More Investigating Triangles Inside Circles
The first three diagrams show four joined isosceles triangles that fit together inside a circle. Calculate all marked angles and write down what you notice about the shaded angles. In the final diagram, choose your own angles and test your theory.
What did you notice? The sum of the yellow angles is always 180°. The sum of the green angles is 180°.



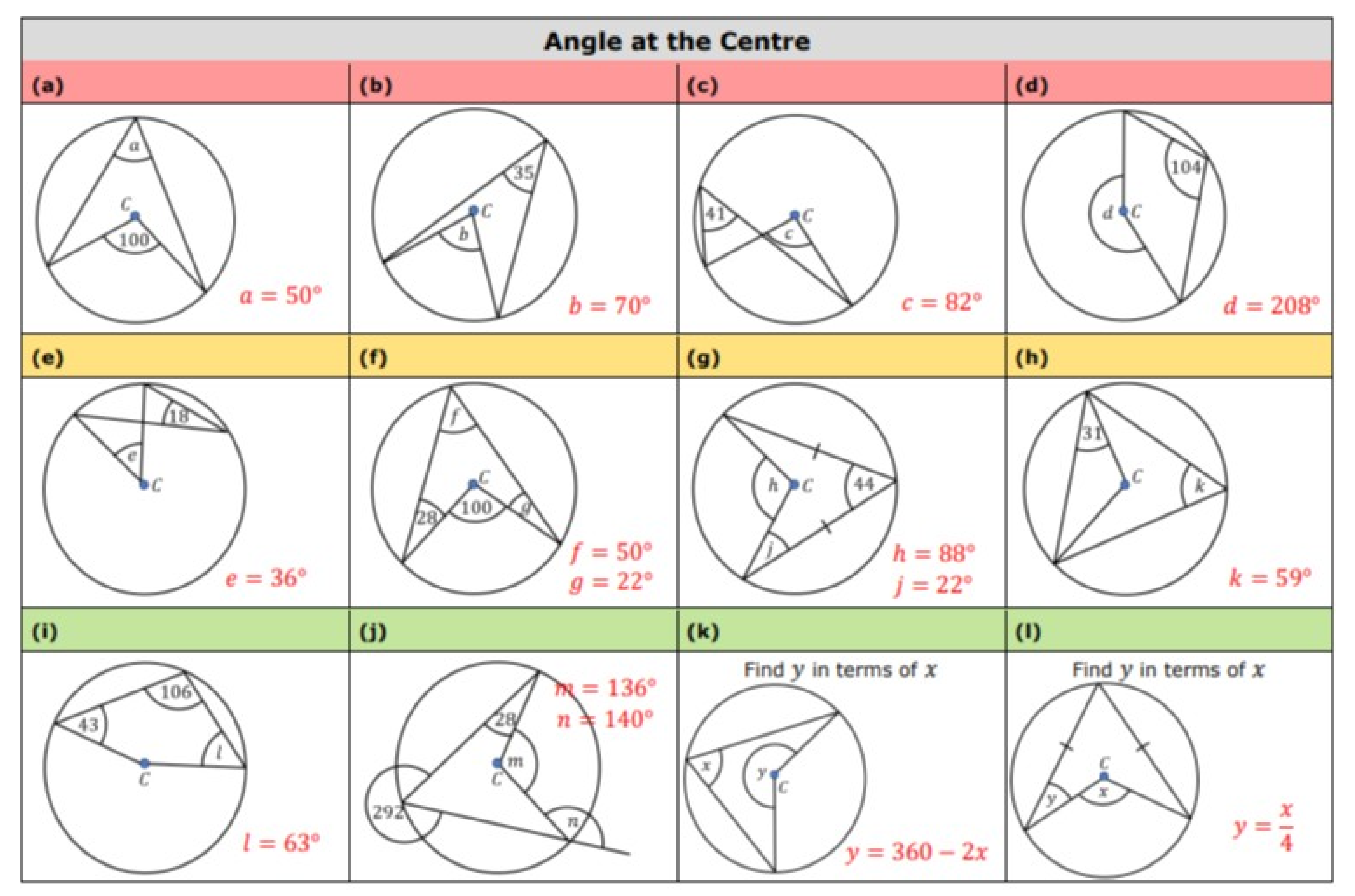
Circle Theorems and Quadrilaterals

(a)	(b)	(c)
Find the missing angle a. $a = 103°$	Find the missing angles b and c. $b = 68°$ $c = 115°$	Find the missing angle d. $d = 73°$

(d)	(e)	(f)
What is the relationship between angles e and f? *e and f sum to 180°*	What is the relationship between angles g and h? *h is double the angle g*	Find the value of j. $j = 71°$

(g)	(h)	(i)
Find the value of k. $k = 132°$	Find the values of m and n. $m = 79°$ $n = 85°$	Find the value of p. $p = 54°$

(j)	(k)	(l)
Find the values of q and r. $q = 103°$ $r = 97°$	Find the values of s and t. $s = 210°$ $t = 34°$	Find the values of u and v. $u = 77°$ $v = 103°$


Angle at the Centre
(a)
a
C
100
$a = 50°$
(b)
35
C
b
$b = 70°$
(c)
41
C
c
$c = 82°$
(d)
104
d
C
$d = 208°$
(e)
18
e
C
$e = 36°$
(f)
f
C
28
100
g
$f = 50°$
$g = 22°$
(g)
h
C
44
j
$h = 88°$
$j = 22°$
(h)
31
C
k
$k = 59°$
(i)
106
43
l
C
$l = 63°$
(j)
28
m
C
292
n
$m = 136°$
$n = 140°$
(k)
Find y in terms of x
x
y
C
$y = 360 - 2x$
(l)
Find y in terms of x
C
y
x
$y = \frac{x}{4}$